

Halcyon smyrnensis fusca is exactly the contrary. "In Hume's Nests and Eggs" (Vol. III, p. 15) we read—"I have never found any nest, so to speak, but both the passage and chamber often contain remains of frogs, mole-cricketts and the like."

I have come across many nests of the White-breasted Kingfisher and I have noticed that while some really containskeletons and carcasses of frogs and rodents there are others which are quite perfectly tidy and clean. I believe that this bird has the habit of cleaning its nest as much as others, and, in the instances where skeletons and dead frogs and moles have been found, the explanation I think is that either the table was laid out for dinner or the remains of a meal lay still unremoved.

These ground-burrowing birds have to contend against the depredations of many quadrupeds. I had under observation a nest of *H. s. fusca* which was one day found dug up with the contents gone. The nature of the excavation pointed unmistakably to a fox as being responsible for it.

This Kingfisher seems to cherish a strong dislike for the Mongoose as well. If this animal comes within so much as hailing distance of its nest, the bird at once attacks it. On the 1st June last I noticed a most interesting incident in which a pair of Kingfishers (*H. s. fusca*), in defence of their hearth and home, gave battle to a mongoose. A mongoose was sniffing past a hole in the bank of a small pool of water. Suddenly, with a loud shriek, a Kingfisher pounced on the marauder which, without offering resistance, at once turned tail and fled. The bird was joined by his dame and from their vantage position in the air they occasionally darted at the animal. The kith and kin of Kipling's wonderful creation, the heroic Rikki-Tikki-Tavi, sneaked away as fast as it could. This animal is very much in evidence in summer, prowling about in our gardens and, I am sure, is responsible for much of the destruction of birds' eggs and the massacre of nestlings.

The above incident suggested the existence of a nest of the above Kingfishers within the hole around which the Mongoose was found loitering. I had this hole dug up and found it to be a circular passage 3 ft. long, at the extreme end of which was the chamber which formed the nursery containing four unfledged young ones. The passage was so smooth that it looked as if it was chiselled out with great care. The nest contained not the least trace of any bone or carcass.

CALCUTTA,
April 1924.

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NO. XV.—DISTRIBUTION OF THE HIMALAYAN IMPEYAN PHEASANT OR MONAL (*LOPHOPHORUS IMPEJANUS*).

Through the kindness of my friend Mr. Cooper of the Imperial Forest Service, and also of the Political and Assistant Political Officers at Sadiya on the North-East Frontier of Assam, I am able considerably and definitely to extend the habitat of this fine pheasant.

Beebe in his sumptuous Monograph gives the distribution as follows:—"The Himalayan Impeyan may be said to occupy the entire Himalayan range of mountains. It has been found in Eastern Afghanistan, and thence eastward through the North-West Frontier Provinces, Kashmir, Garhwal, Nepal, Sikkim, and for some distance in Western Bhutan, as far indeed as any reliable records have been obtained." Stuart Baker in his "Game Birds of India" gives it as—"Afghanistan, Chitral, and the Western Himalayas through Kashmir, Garhwal, Nepal, Sikkim, Native Sikkim, Bhutan of the Chambi Valley and South Tibet."

From the latter distribution I think we must now eliminate British Sikkim

as Mr. Stevens, on whose authority Stuart Baker apparently includes it, now doubts whether it occurs there, it is still however to be found in Native Sikkim, I came across it there during a trip last June. According to a distribution map of this bird as collected or observed by Major Bailey, C.I.E., made while I was on a visit to him, it appears to be found slightly further East in Bhutan than given in Beebe's map and probably extends right across that country. He has lately got specimens alive from Ha in Bhutan.

The first intimation I got as to the further Eastern extension of this species was in a letter from Mr. Cooper, dated Sadiya, 7th February 1923, in which he wrote:—"However, I send herewith a photo of a Monal pheasant which I believe to be *impejanus* and not *sclateri*. (The photo is not good and is therefore not reproduced but the spatulate feathers could just be seen on the top of the head.) In Baker's book he puts the east limit of this pheasant at Bhutan. If this is *impejanus* he certainly goes east of Mishmi Hills. This pheasant was brought as a present to the A. P. O. here from the Delei Valley or east of it."

I showed this letter and photograph to Mons. Delacour when he was here and at first he thought it might possibly be *lhuysii*, but on examining it carefully through a lens the spatulate feathers of the crest were quite plain. About the end of last year, through the courtesy of the Political and Assistant Political Officers at Sadiya, I was able to get positive proof of this. Four skins of Impeyan pheasants were kindly sent to me, three of which were *sclateri* and one a cock *impejanus*. I wrote enquiring as to the locality in which they were found and received the following reply from Mr. Godfrey, Asstt. Political Officer, dated Sadiya 28th January 1924: "The monals, the skins of which we sent you were found near the snow line (8,000') on either side of the Delei valley. Mishmis state that they are also found as far east as the hills of the Dou Valley. I had an ordinary monal cock brought in last year (evidently the one whose photograph Cooper sent me. C. M. I.) but it died as soon as the weather became hot and unfortunately I was unable to save the skin. . . . The Mishmis have only one name *Pia-Padai* for the Monals and make no effort at distinguishing the various kinds."

As no skins have been forthcoming from the Dou Valley, we cannot say whether both species or only *sclateri* occurs there but that both are found in the Delei Valley is now proved. There still remains a big gap between Bhutan and this valley from which no specimens have been obtained but it seems improbable that *impejanus* should occur in an isolated tract far from its ordinary habitat and I think we may correctly presume that it is found, in suitable country, right across from the S. E. of Kabul to the Delei Valley in the Mishmi Hills on the North-East Frontier of Assam.

DARJEELING,
28th July 1924.

C. M. INGLIS,
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NO. XVI—THE MECHANICS OF THE SOARING BIRD.

May I invite the aid of the members of your Society to solve the problem of what may be called the "Mechanics" of the *soaring* bird. The information I seek is not contained in any text book in English or French on soaring flight.

(1) *Efficiency*.—We measure the efficiency of an aeroplane by the angle of its glide. The steepness or "flatness" of the gliding slope is entirely governed by the resistance ("drift" or "drag") of the aeroplane. In a typical modern aeroplane we find it hard to better a slope of 1 in 8. What is the gliding angle of typical soaring birds—say of the common vulture (*Pseudogyps bengalensis*)